

Figure 1: System Model

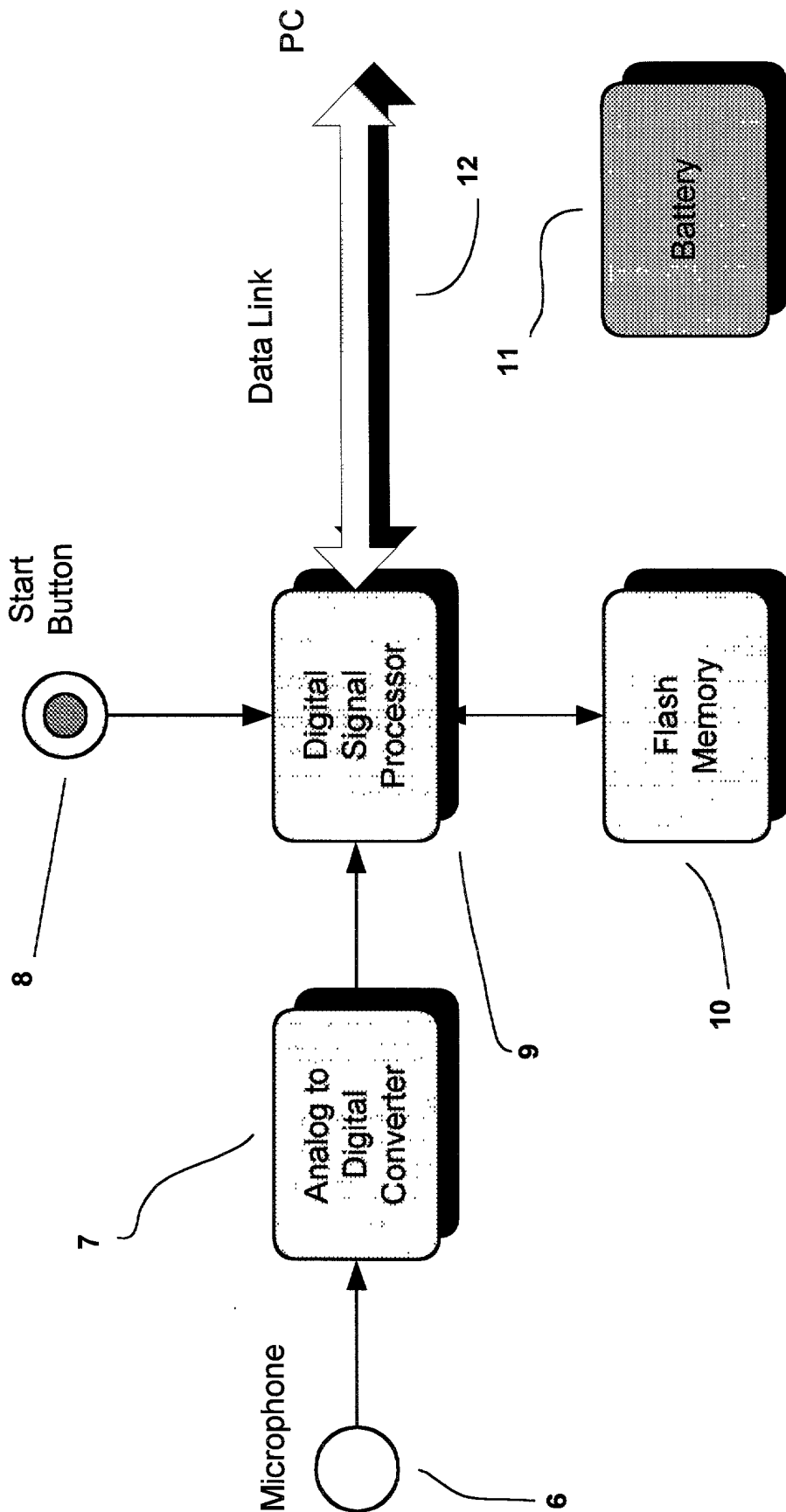


Figure 2: Typical Audio Capture Device

Figure 3 is a block diagram of a Signal Recognition System. The system includes a central hub connected to various components. The components are: 13 Internet, 14 Website, 15 Management Database System, 16 Pattern Recognition Subsystems, 17 Pattern Initialization Subsystem, and 18 Master Pattern Database. The central hub is connected to each of these components. The Internet is connected to the Website. The Website is connected to the Management Database System. The Management Database System is connected to the Master Pattern Database. The Master Pattern Database is connected to the Pattern Initialization Subsystem. The Pattern Initialization Subsystem is connected to the Pattern Recognition Subsystems. The Pattern Recognition Subsystems are connected to the Internet.

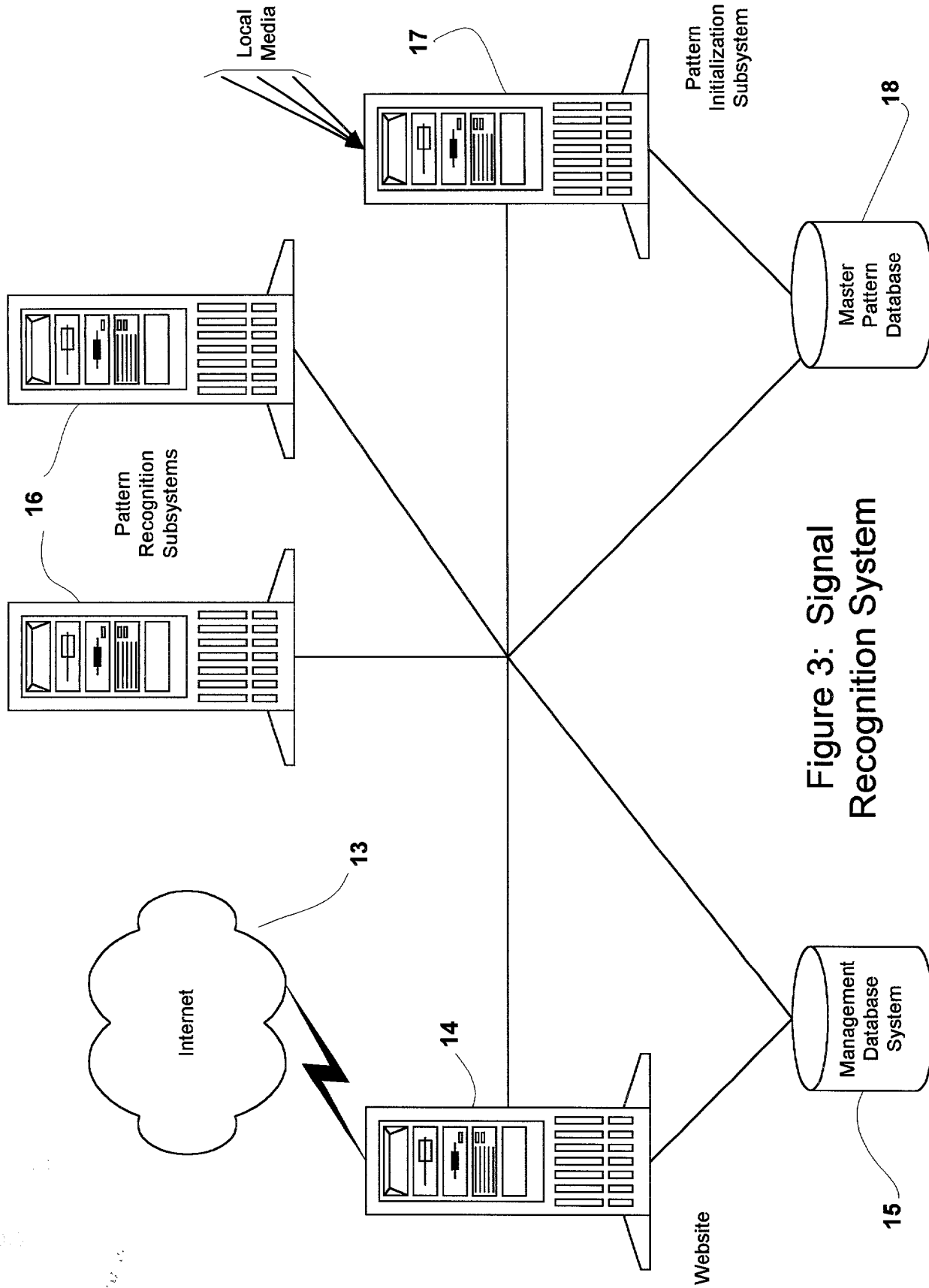


Figure 3: Signal Recognition System

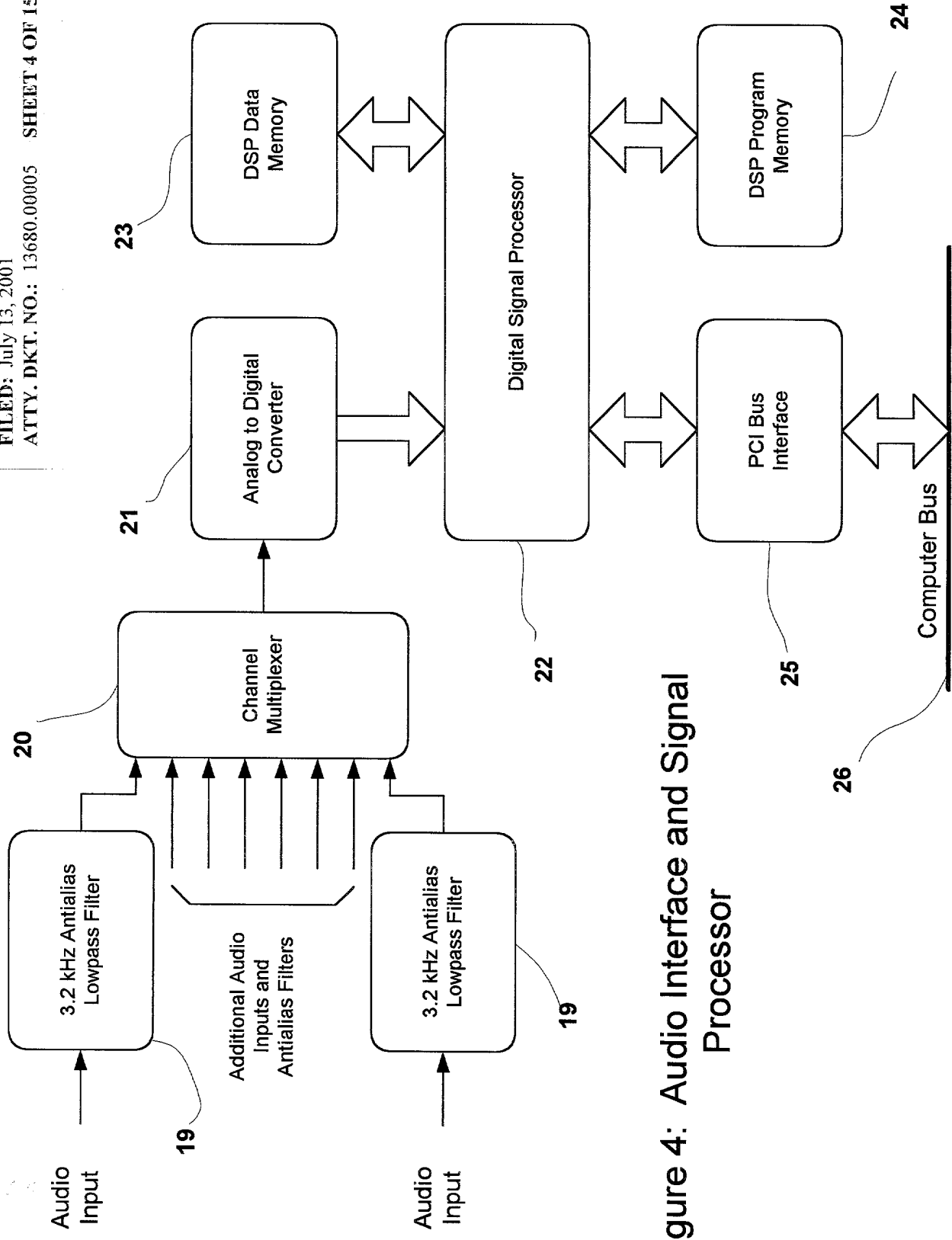


Figure 4: Audio Interface and Signal Processor

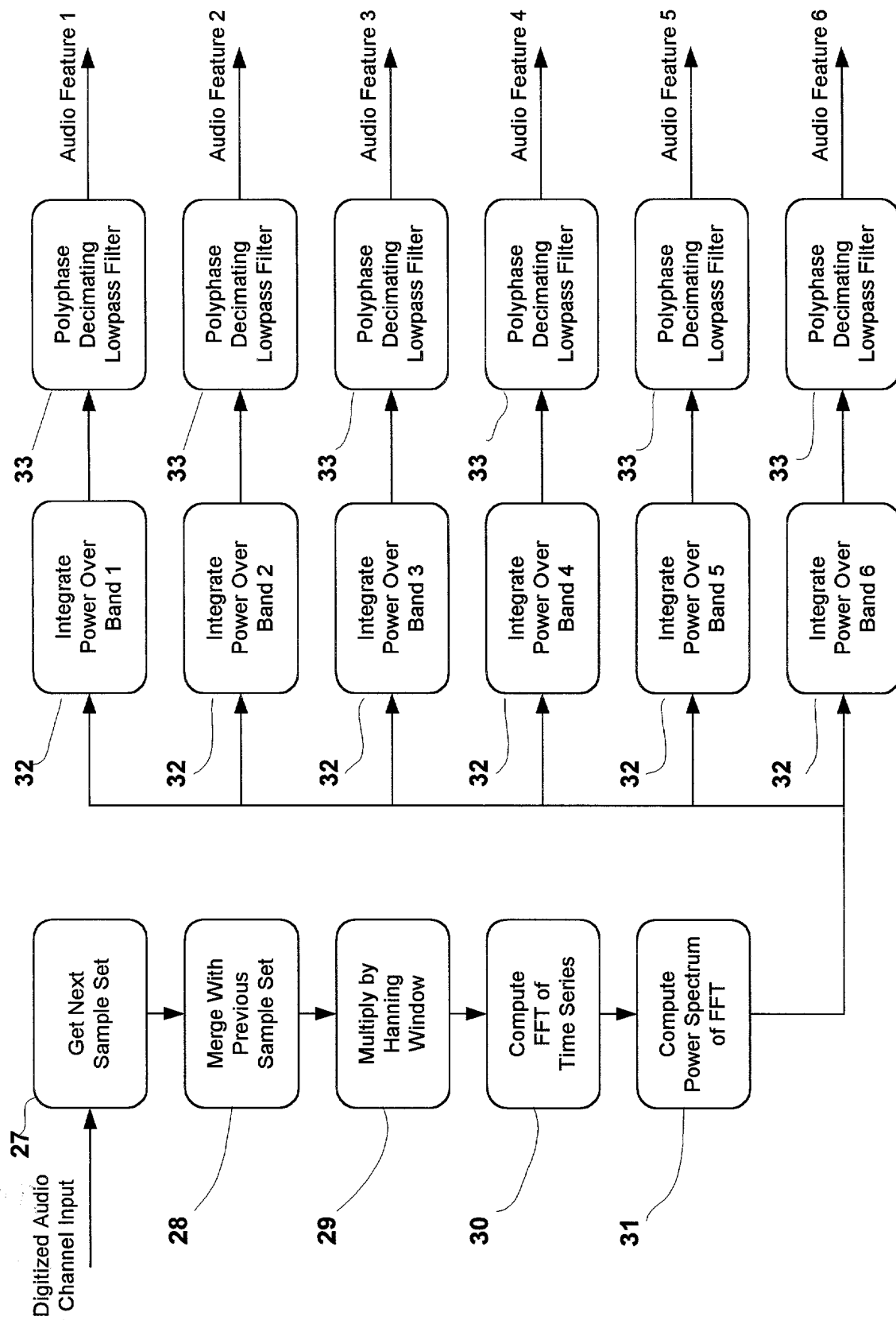


Figure 5: Audio Spectrum Analysis and Feature Extraction

INVENTOR(S): STEPHEN C. KENYON, ET AL.
APPLICATION NO.: 09/903,627
TITLE: AUDIO IDENTIFICATION SYSTEM AND METHOD

FILED: July 13, 2001
ATTY. DKT. NO.: 13680.00005 **SHEET 6 OF 15**

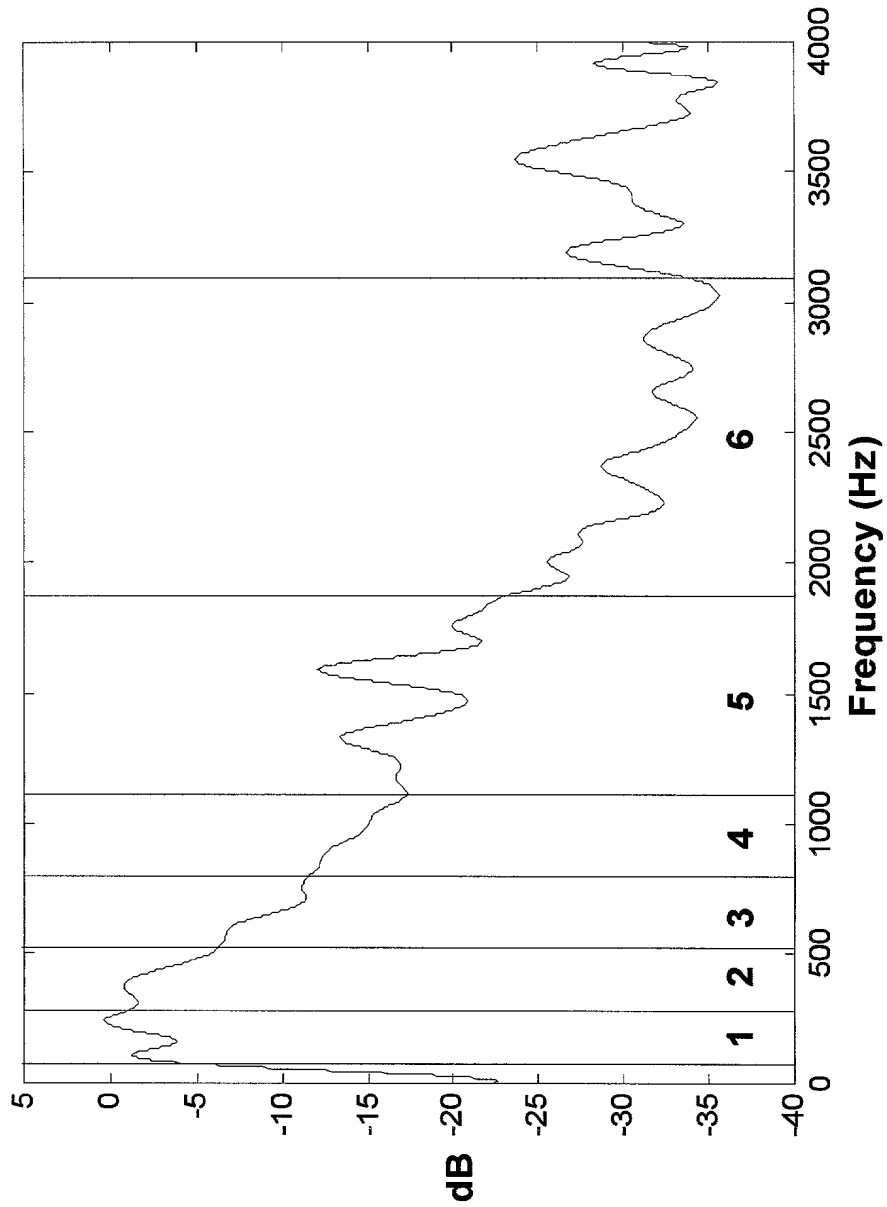


Figure 6: Audio Spectrum Analysis Bands

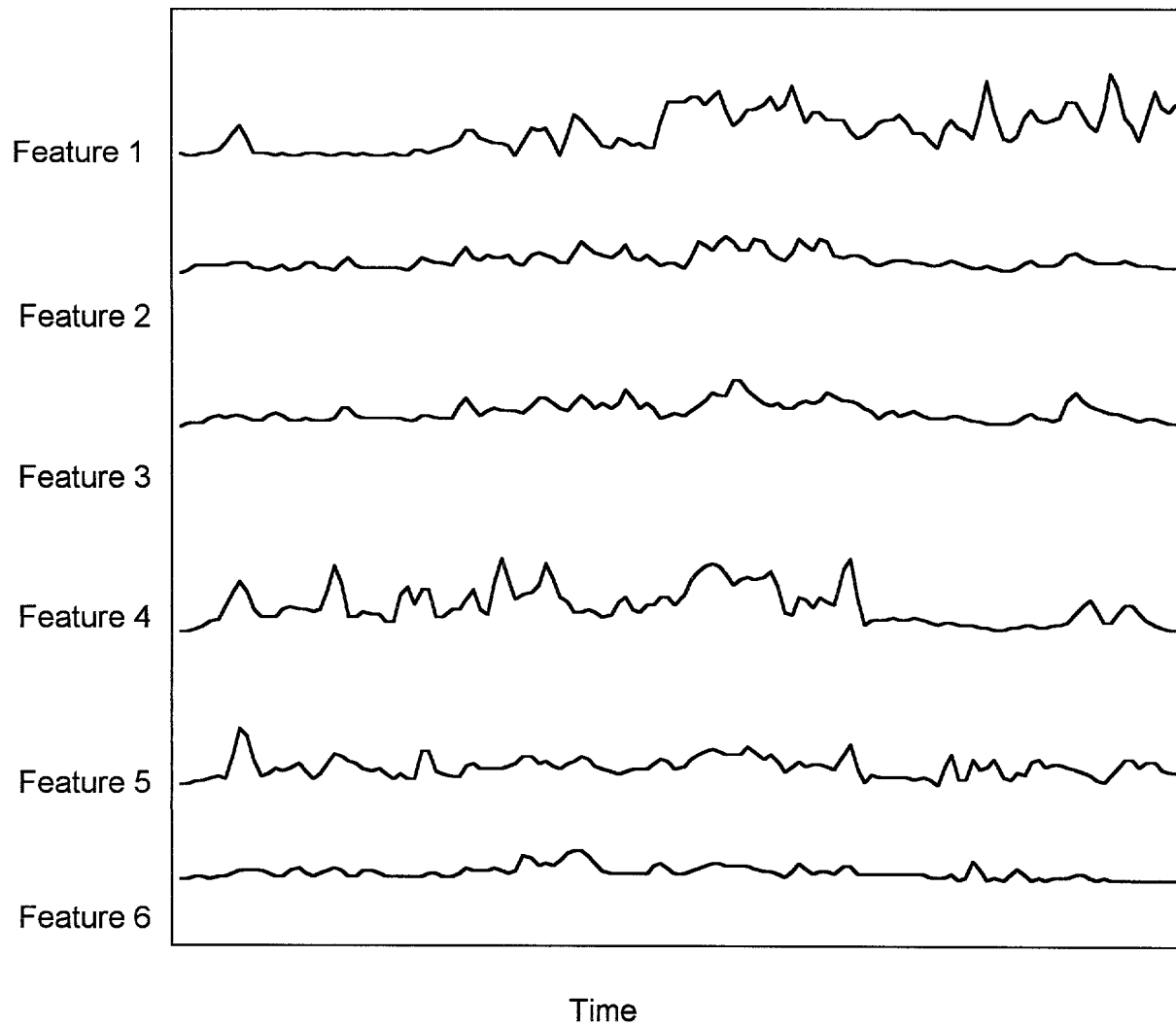


Figure 7: Example Feature Waveforms

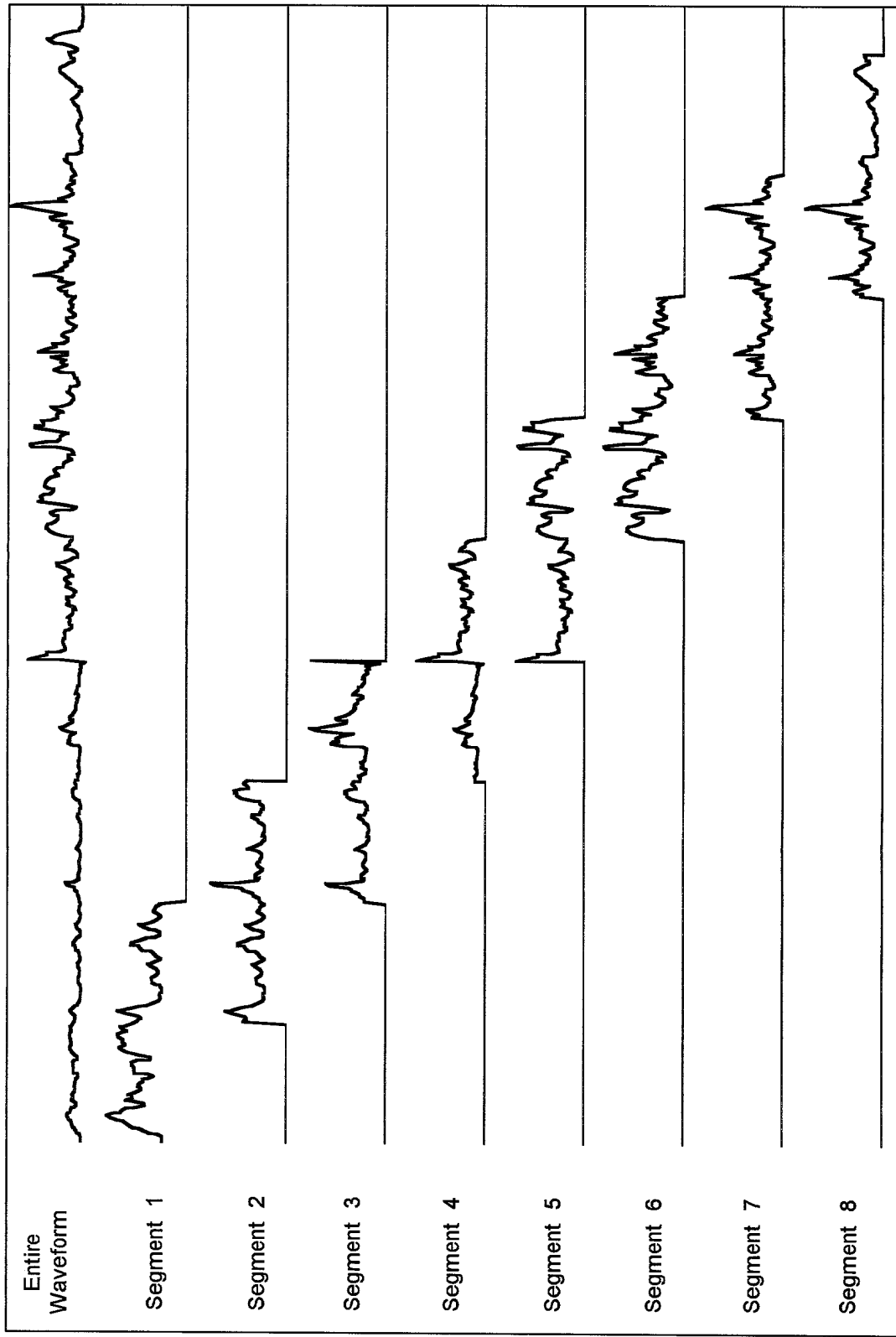


Figure 8: Reference Feature Waveform Segmentation

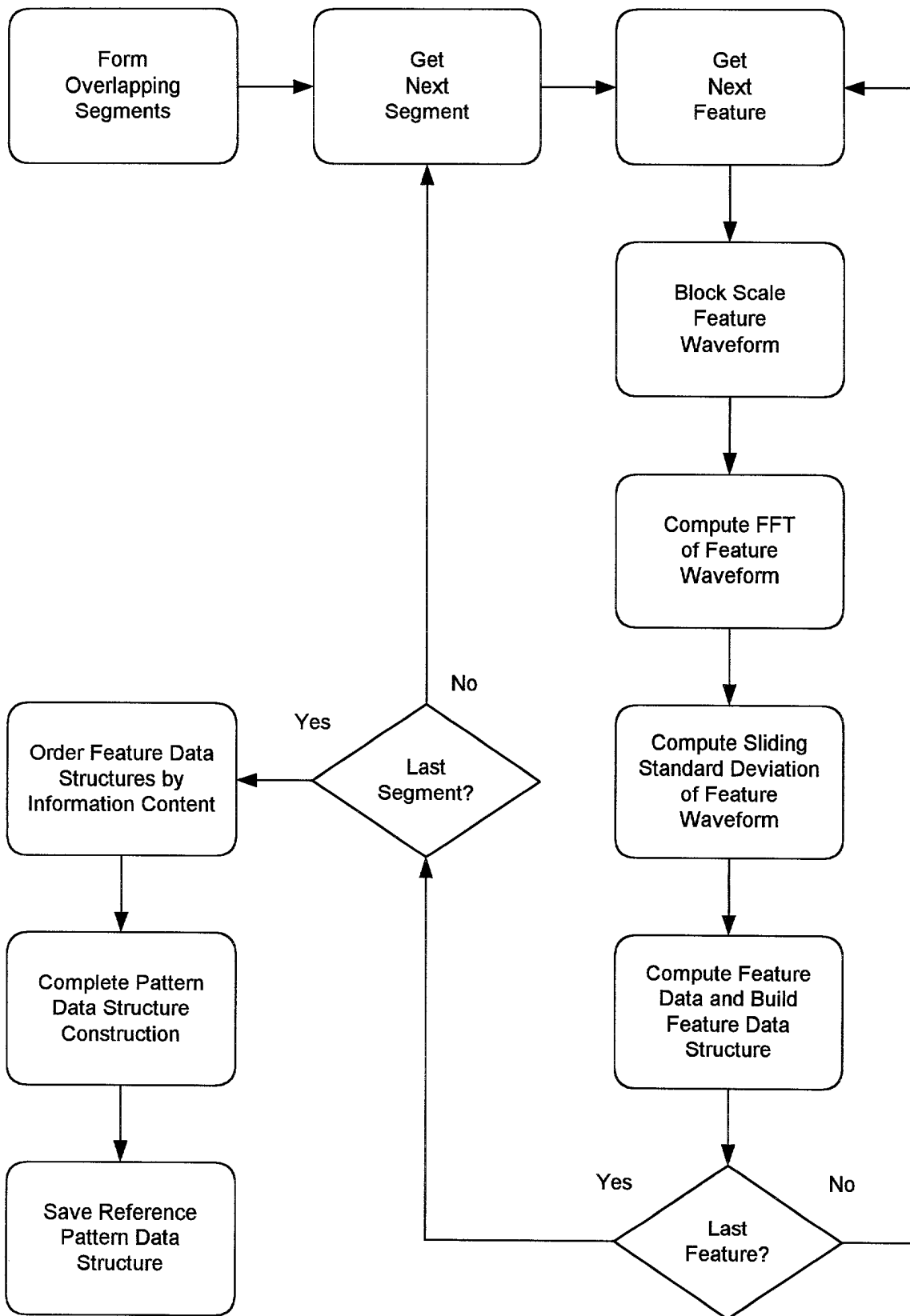


Figure 9: Reference Pattern Initialization

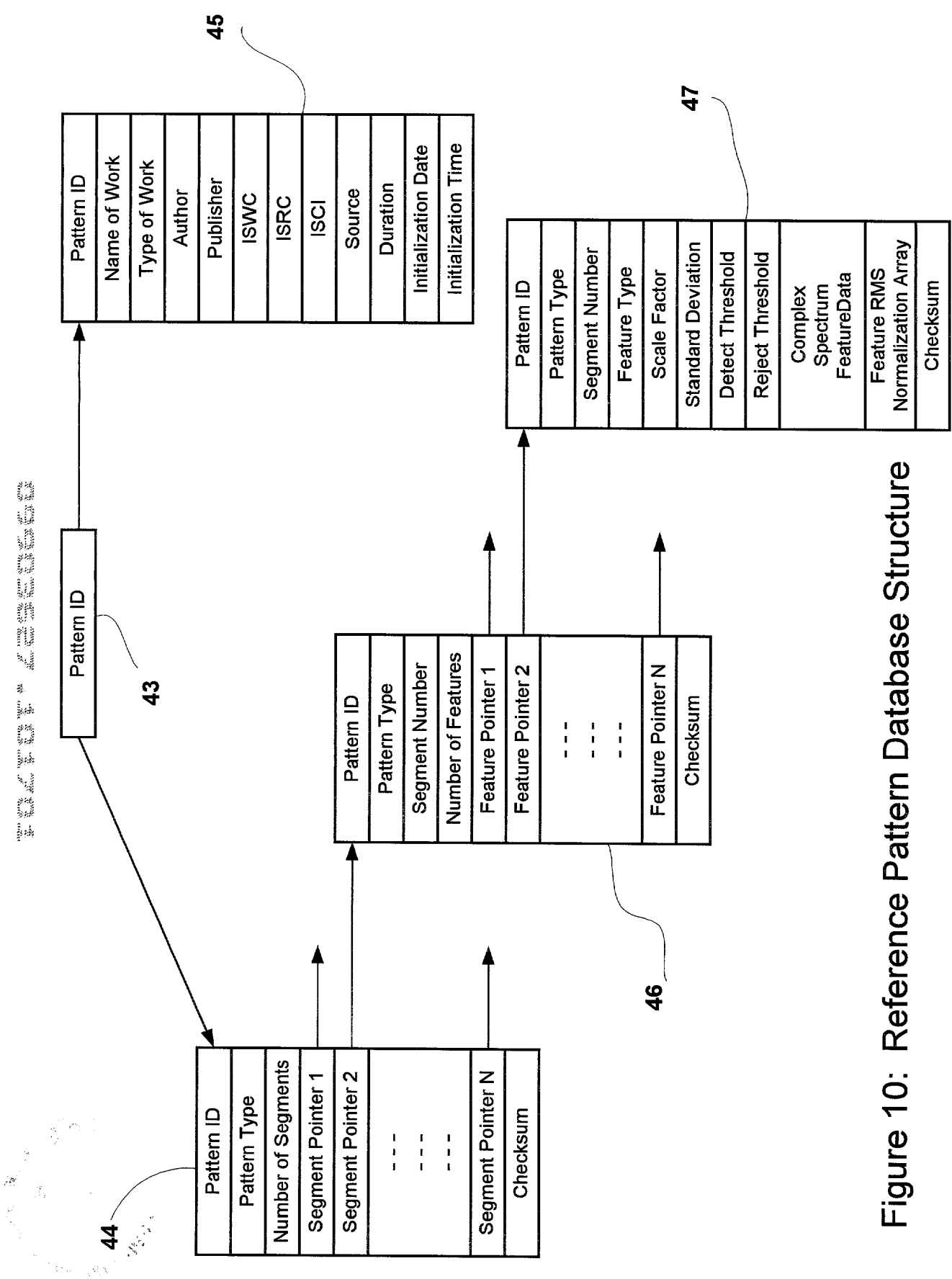


Figure 10: Reference Pattern Database Structure

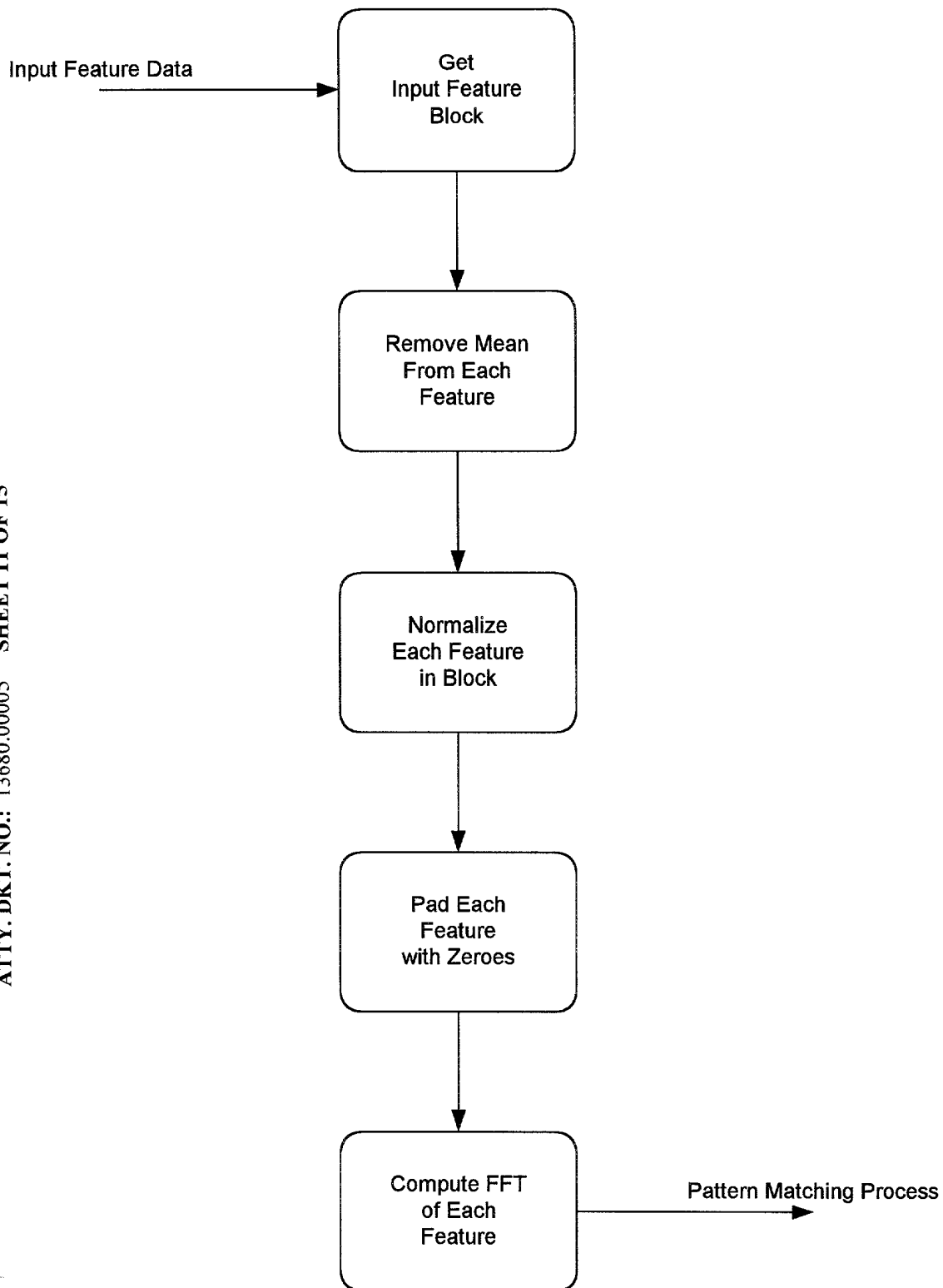


Figure 11: Real-Time Feature Block Pre-Processing

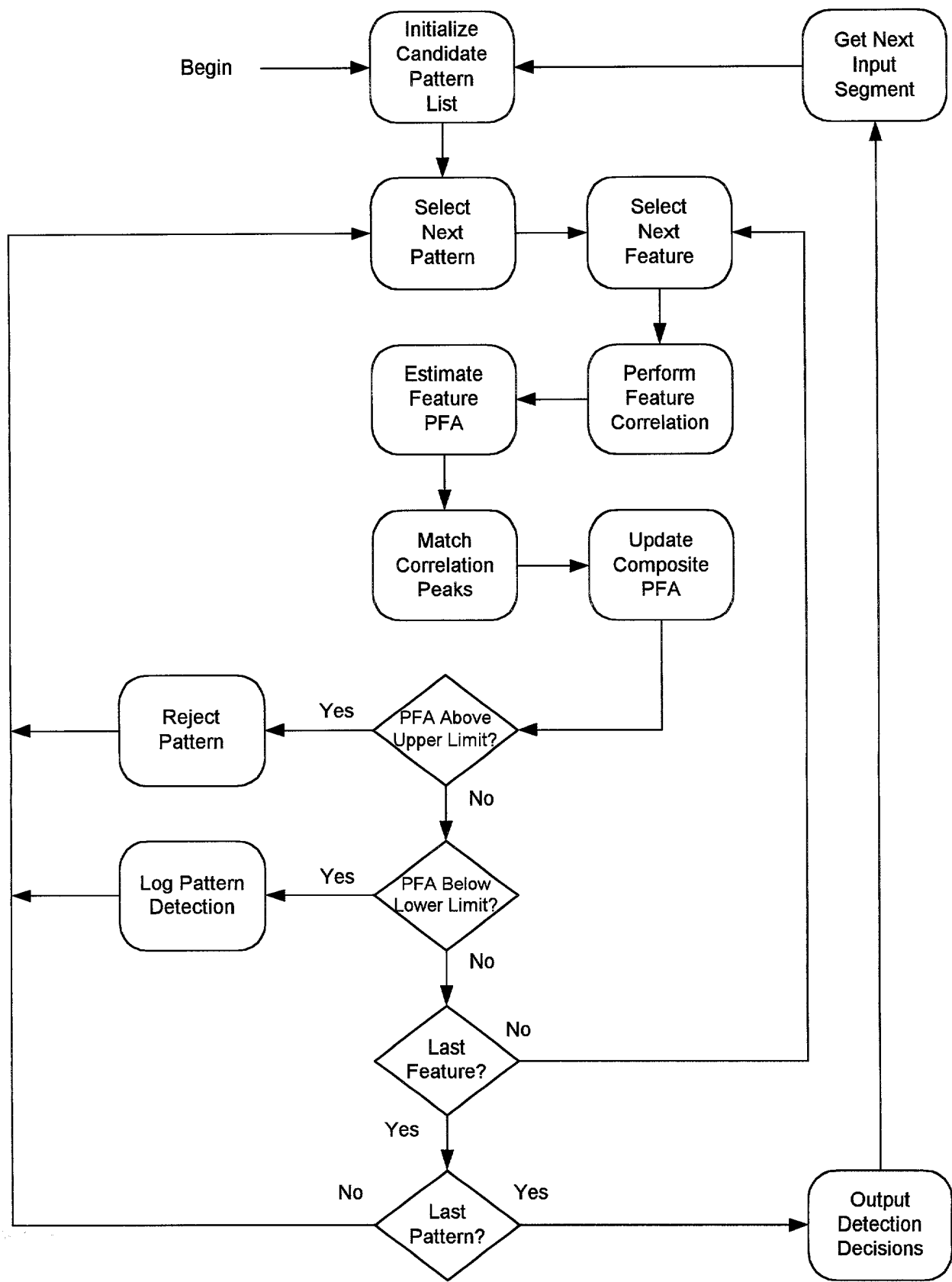


Figure 12: Multiple Feature Correlation Process

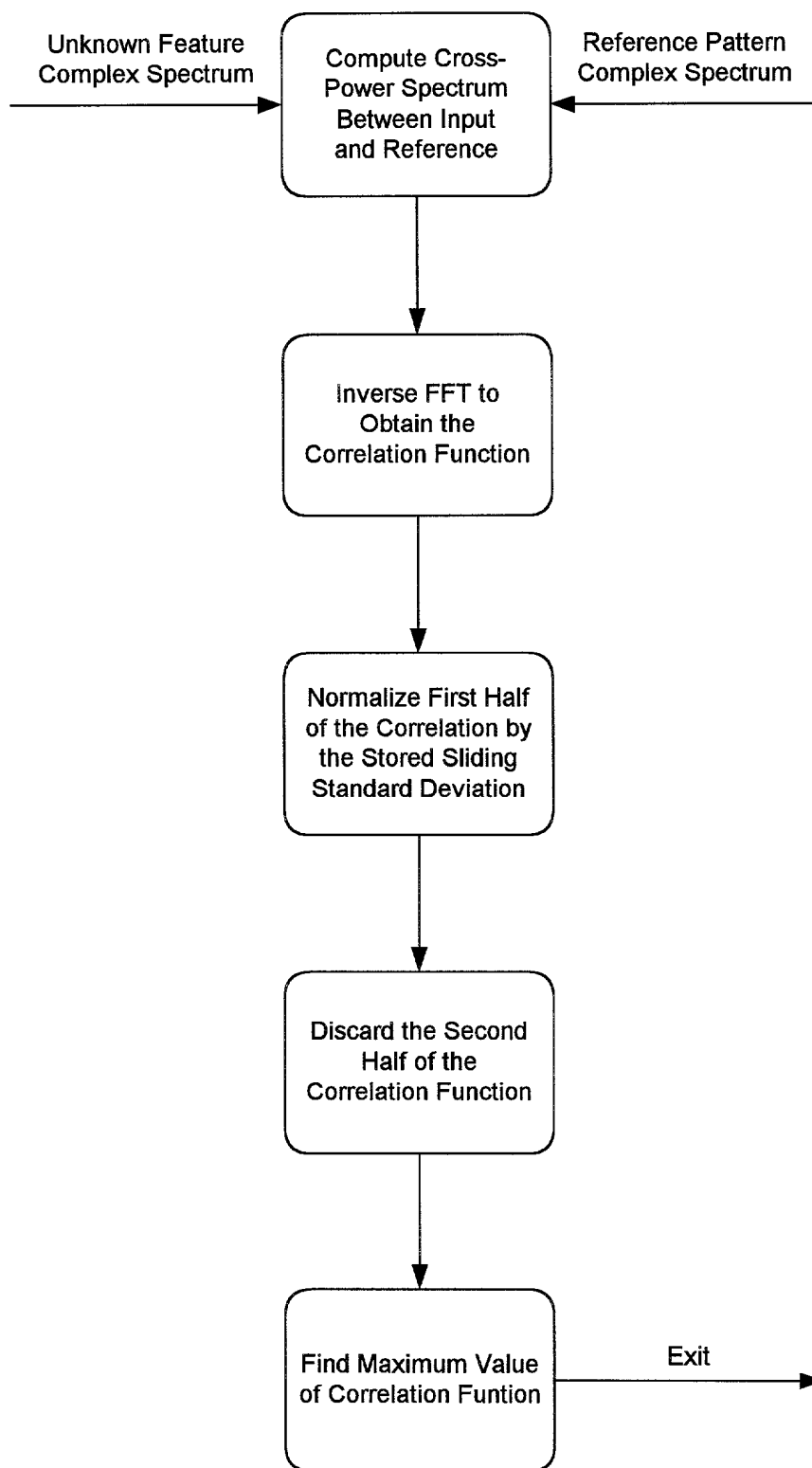


Figure 13: Feature Correlation Process

INVENTOR(S): STEPHEN C. KENYON, ET AL.
APPLICATION NO.: 09/903,627
TITLE: AUDIO IDENTIFICATION SYSTEM AND METHOD

FILED: July 13, 2001
ATTY. DKT. NO.: 13680.00005 **SHEET 14 OF 15**

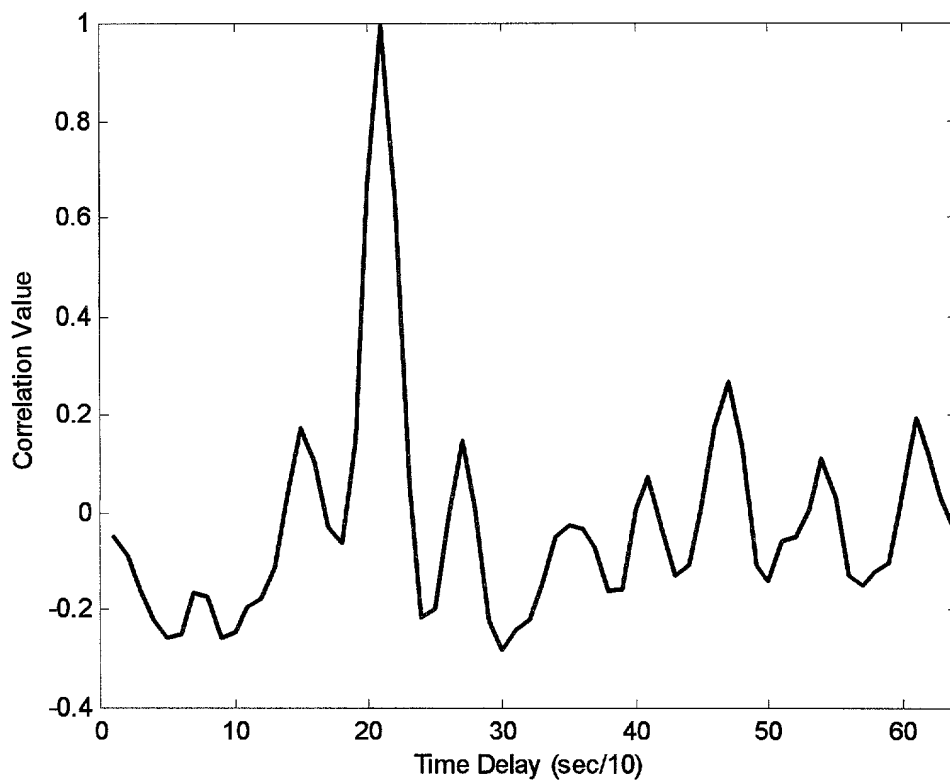
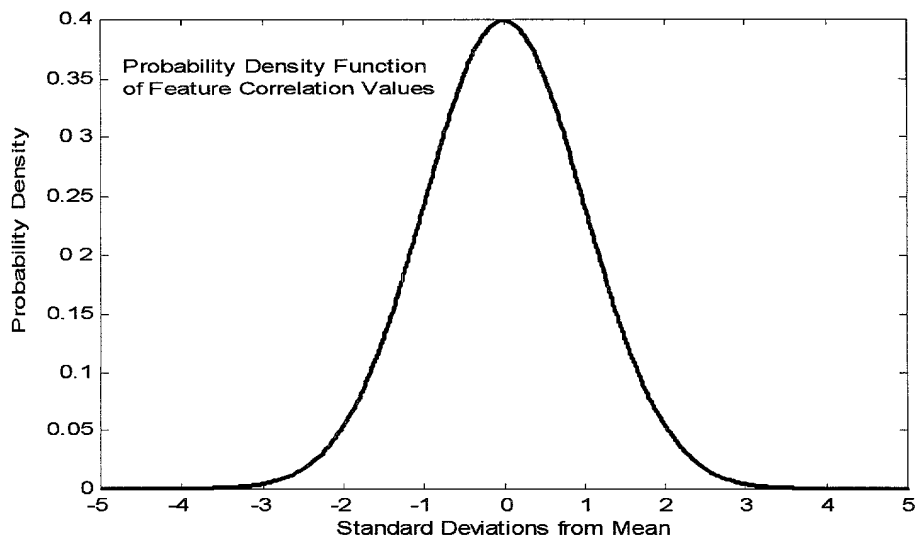
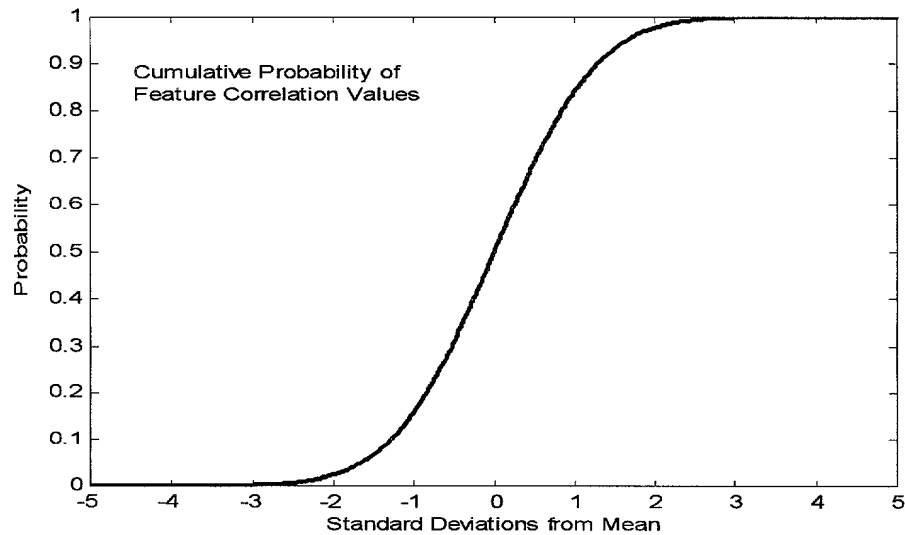


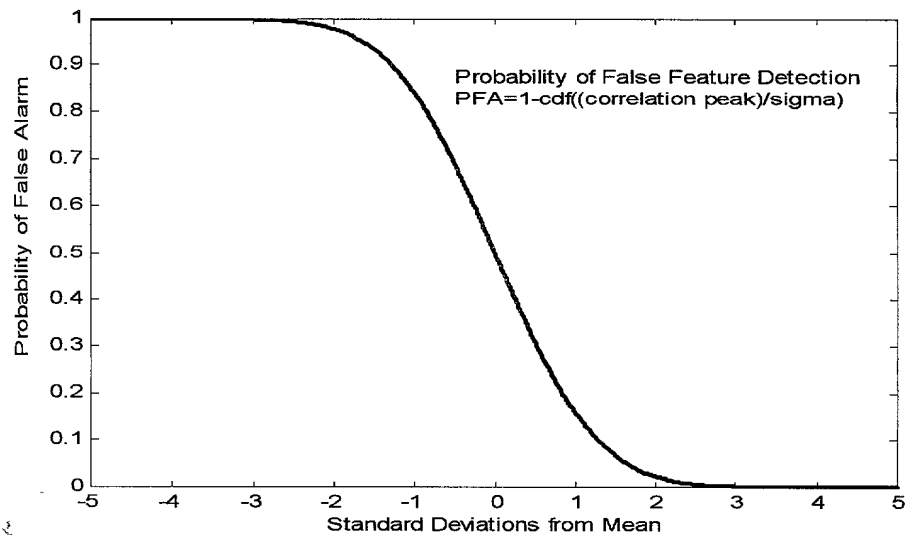
Figure 14: Example Feature Correlation Function



(A)



(B)



(C)

Figure 15: False Detection Estimation from Correlation Values